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The New Western Australian Tiphiid Genus *Dythynnus* Kimsey (Hymenoptera: Tiphiidae: Thynninae)

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Abstract.—The new genus ***Dythynnus*** **Kimsey** is described from Western Australia based on the new species ***solaris*** **Kimsey** and ***thermophilus*** **Kimsey** (type of genus).

Northern and central Western Australia are among the most poorly collected regions in Australia. A large number of thynnine species from this area fail to fit into established genera. Although the precise relationships between *Dythynnus* Kimsey and other Australian thynnine genera remain unresolved, preliminary phylogenetic analyses of these genera suggest that *Dythynnus* is at least a basal lineage of a clade containing genera related to *Iswaroides* Ashmead, as discussed by Kimsey (1999). This is based upon a number of male characteristics including the laterally notched transverse pronotal carina (welt), the epipygium subapically with a partial transverse carina, volsella U-shaped in cross-section, gonobase narrowly attached to gonocoxa, and slender penis valves. This genus also has the palpal brush seen in *Chilothynnus* Brown.

Specimens were obtained through extensive collecting in Western Australia. Both holotypes will be placed in the Western Australian Museum, Perth. Paratypes will be dispersed between the Australian National Insect Collection, CSIRO, Canberra, ACT, the Bohart Museum of Entomology, University of California, Davis, USA, and the Western Australian Museum. The terms hypostomal plate and hypostomal carina are used in the sense of Bohart and Menke (1976).

Dythynnus Kimsey, new genus

Male.—Body length 6–9 mm. *Head:* clypeus narrowly truncate apically, truncation round cornered and 1–2 midocellus diameters across; antennal lobes small, closely aligned and rounded, without ridge or carina, strongly elevated above subantennal sclerite; frons with frontal line extending nearly to midocellus; labrum small and apically bilobate; vertex without red spot behind hindocellus; basal maxillary palpal segment with long, erect setae; hypostomal plate extending to outer mandibular socket; occipital and hypostomal carinae narrowly to broadly separated ventromedially; prementum asetose, longitudinally grooved laterally; stipes with sparse marginal fringe, traversing stipes at midpoint; flagellomere I 1.5–2× as long as broad; flagellomere II 2.5–3× as long as broad; flagellomeres without tyloids or with single, often indistinct, subapical one. *Mesosoma:* pronotal disk anterior margin marked by transverse swelling or broad ridge, without medial or sublateral indentations or notches; scrobal sulcus shallow, extending less than half way across mesopleuron; propodeum sloping obliquely from metanotum to petiolar socket; forecoxa globular to flat, medially setose to asetose; legs unmodified except hindtrochanter produced posteriorly into sharp apical angle or tooth. *Metasoma:* tergum I about as broad as long,

gently convex subapically, sternum I medially convex; terga I–VI and sterna II–V each with subapical transverse sulcus; terga I-V each with subspiracular sulcus; epipygium with thin subapical transverse carina or none, with thin to broad apical transparent rim; hypopygium narrowly triangular with transparent lateral edge. *Genital capsule* (as in Figs. 3–5, 8–10): gonocoxa dorsoapically lobate; gonobase narrowly attached to gonocoxa in lateral view; paramere apically bilobate or truncate; aedeagus with long apical loop; volsella large, U-shaped in cross section, with slender inner and outer lobes (as in Figs. 6, 11); penis valves slender apically. *Color:* black, strongly marked with yellow, orange and red.

Female.—Unknown.

Type species.—Dythynnus thermophilus Kimsey, new species.

Etymology.—The generic name is a nonsense combination of letters added to the commonly used suffix in this tribe—"thynnus". The name is assumed to be masculine.

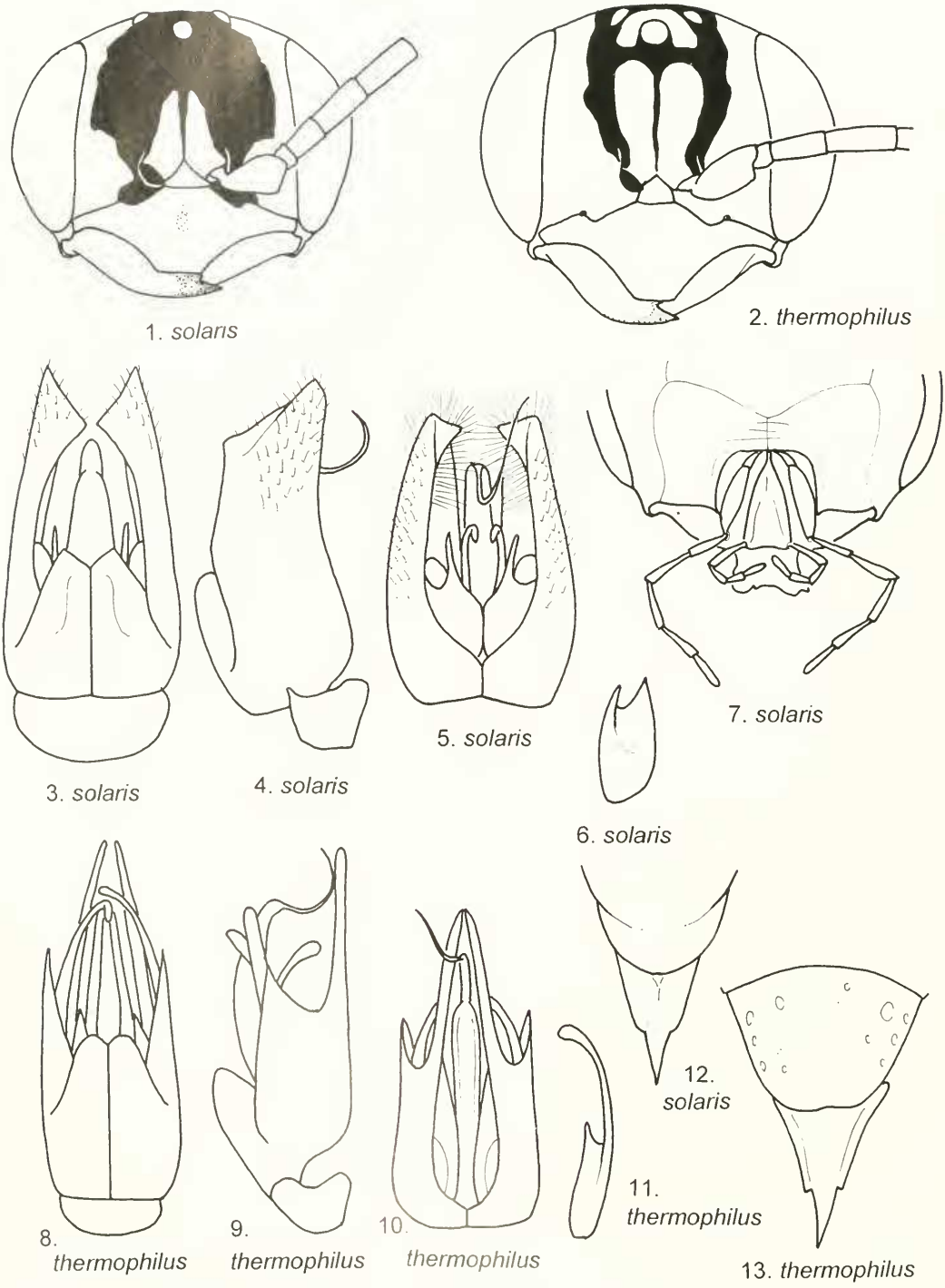
Included species.—Dythynnus solaris Kimsey, new species and *Dythynnus thermophilus* Kimsey, new species.

Distribution.—This genus is known from two regions in Western Australia, the Stirling Range (*solaris*) and 100+ km north of Northampton (*thermophilus*), in the summer months of December and January.

Discussion.—Dythynnus species can be immediately separated from other Australian genera by the sparse, arcuate stipal fringe, occipital and hypostomal carinae broadly separated, flagellomeres without or with only a single tyloid, laterally notched pronotal welt, epipygium with broad, polished and impunctate apicomedial area, and basal maxillary palpal segments with erect brush-like setae. The brushy palpal segments are similar to those seen in *Chilothynnus* Brown. However, the closely aligned antennal sockets (about 1 midocellus diameter apart), elongate and narrowly triangular hypopygium, and arcuate stipal fringe will immediately separate *Dythynnus* from *Chilothynnus.*

Dythynnus solaris Kimsey, new species
(Figs. 1, 3–7, 12)

Male.—Body length 6–7 mm. *Head* (Fig. 1): facial punctation contiguous to 1 puncture diameter apart, punctures becoming larger on frons; vertex with punctures behind ocelli 1–2 puncture diameters apart; clypeal apex 0.2 × greatest width of clypeus; clypeus greatest width 2.6× length; face 1.2× as long as greatest width above antennal sockets; midocellus 4.2 midocellus diameters from nearest eye margin; flagellomere I 1.7× as long as broad; flagellomere II twice as long as broad; flagellomere III 2.5× as long as broad. *Mesosoma:* pronotal and scutal punctures 1–2 puncture diameters apart; scutellar punctures 2–4 puncture diameters apart; metanotum nearly impunctate; propodeal punctures nearly obscured by dense, fine, transverse ridges, smooth and impunctate anteriorly; mesopleural punctures 0.5–1 puncture diameter apart; propleuron convex and setose; forecoxa convex, covered with long setae, setae becoming densest in medial patch; *Metasoma:* terga and sterna highly polished, punctures small and shallow, 2–4 puncture diameters apart; epipygium subapically narrowed with broad transparent rim; hypopygium (Fig. 12). *Genital capsule* (Figs. 3–5): paramere broad and apically truncate in lateral view, apex bending toward midline, dorsally densely setose; gonocoxa dorsally broadly bilobate, dorsal surface depressed sublaterally; volsella with slender digitate inner lobe and broader, acute outer lobe (Fig. 6). *Color:* head black, with whitish band along eye margin and becoming reddish behind vertex; clypeus and mandible whitish; frons with short whitish band above each antennal socket; occiput and hypostoma black; pronotum black, with transverse anterior and posterior whitish bands; scutum and scutellum black, with whitish



Figs. 1–13. *Dythynnus* species. 1, 2, Front view of male face, left antenna not shown. 3, 8, Dorsal view of genital capsule. 4, 9, Lateral view of genital capsule. 5, 10, Ventral view of genital capsule, with gonobase removed. 6, 11, Ventral view of volsella. 7, Ventral view of male head, with occipital region not shown. 12, 13, Dorsal view of metasomal segment VII, tergum and sternum.

medial and lateral spots; metanotum black, with whitish medial spot; propodeum black; mesopleuron black, with whitish comma-shaped anterior and rounded posterior spots; propleuron black; forecoxa black, with large medial whitish spot and interior black spot (corresponding with tuft of long setae); forelegs red; mid and hindlegs, coxae black becoming whitish dorsally, trochanters brown, femora red, tibiae red ventrally, brown dorsally, tarsi brown; metasomal tergum II black, with pale lateral spot; terga III–VI reddish brown, becoming darker posteriorly, with pale whitish lateral spot; terga VII–VIII dark brown to black; sternum II black; sterna III–VII red; sternum VIII dark brown; wing veins brown, becoming pale basally; wing membrane untinted.

Type material.—Holotype ♂: 7 km n Stirling Range, 34°19′S 118°11′′E, 23–25 Dec. 1994, L. S. & R. B. Kimsey, ex *Eucalyptus* flowers, field No. WA122401 (PERTH). Paratypes: 1 ♂ : same data as holotype; 1 ♂ : 24 Dec. 1994; 1 ♂ : 23–26 Dec. 1994; 3 ♂ : 24–26 Dec. 1994, field No. WA122305 (CANBERRA, DAVIS, PERTH).

Etymology.—The species name means ''of the sun'', Latin, masculine; it refers to the intense summer conditions when the males fly.

Discussion.—Dythynnus solaris can be distinguished from *thermophilus* by the apically truncate parameres, flagellomere I less than twice as long as broad, pale, whitish markings, and entirely black propodeum.

Dythynnus thermophilus Kimsey, new species

(Figs. 2, 8–11, 13)

Male.—Body length 6–9 mm. *Head* (Fig. 2): face highly polished; subantennal sclerite impunctate; clypeal punctures 3–5 puncture diameters apart; area between antennal socket and eye nearly impunctate; frons and vertex highly polished, punctures 2–8 puncture diameters apart; clypeal apex 0.2× greatest width of clypeus; clypeus greatest width 2.6× length; face 1.3–1.4× as long as greatest width above antennal sockets; midocellus 2.8 midocellus diameters from nearest eye margin; flagellomere I 2.2× as long as broad; flagellomere II 3× as long as broad; flagellomere III 3.2–3.5× as long as broad. *Mesosoma:* pronotum, scutum and scutellum highly polished, punctures 4–8 puncture diameters apart, becoming denser laterally; metanotum nearly impunctate; propodeum impunctate medially, punctures 1–2 puncture diameters apart laterally; mesopleuron highly polished, punctures 2–4 puncture diameters apart; propleuron convex and evenly setose; forecoxa slightly flattened and nearly asetose in most specimens. *Metasoma:* tergal punctures tiny and obscure, 1–4 puncture diameters apart anteriorly, markedly larger and denser on tergum VII; sternal punctures 1–4 puncture diameters apart; epipygium with thin, transverse, subapical carina, and narrow, transparent apical rim; hypopygium (Fig. 13). *Genital capsule* (Figs. 8–10): paramere strongly bilobate, with acute dorsal lobe and elongate digitate ventral one, nearly asetose; gonocoxal dorsal lobes broadly rounded, overall appearing shallowly bilobate dorsomedially; volsella with long digitate outer lobe and much shorter, acute inner lobe (Fig. 11). *Color:* Head yellow, except frons midline brown to black in some specimens, and black line extending dorsally above antennal sockets connecting with line forming box around ocelli; some specimens with brown line extending from posterior eye margin and across vertex behind ocelli; occiput black; pronotum yellow except transverse medial stripe and anterior face; scutum black, with large tridentate medial spot and yellow laterally; scutellum yellow, with black anterior margin connected to sublateral black band; metanotum yellow medially and anteriorly, black laterally; propodeum black, with broadly triangular yellow medial spot and large

comma-shaped lateral yellow spot; propleuron black, with large yellow medial spot; coxae yellow, with black base; mid and forelegs yellow and red, with apical tarsomeres brown (tibiae and femora may be entirely yellow, and foretarsi yellow in some specimens); hindfemur red, yellow laterally, hindtibia red, hindtarsomeres brown; mesopleuron black, with most or all of lateral surface yellow, scrobal sulcus marked by black and brown in some specimens; metasomal tergum II black basally, yellow submedially and red posteriorly; terga III–VI each red becoming brown posteriorly, each with large yellow lateral spot or complete yellow band; metasomal sterna red, except sternum VIII dark red to black; wing veins pale brown, becoming paler basally; wing membrane untinted.

Type material.—Holotype ♂: 115 km n Northampton, 9 Jan. 1995, 27°27′S 114°41′E, R. B. & L. S. Kimsey, ex *Eucalyptus* flowers, field No. WA010905 (PERTH). Paratypes: 19 ♂: same data as holotype; 9 ♂: 120 km n Northampton, 27°25′S 114°40′E, R. B. & L. S. Kimsey, ex *Eucalyptus* flowers, field No. WA010904 (CANBERRA, DAVIS, PERTH).

Etymology.—The name, "*therme*", "*philus*", means heat-loving, Greek, masculine; it refers to the hot summer conditions encountered when the specimens were collected.

Discussion.—This species can be readily distinguished from *solaris* by the strikingly bilobate parameres, much longer first flagellomere and bright yellow markings, particularly the yellow medial propodeal spot.

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